

VIA ECFS

July 17, 2019

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

**EX PARTE FILING OF ENCINA COMMUNICATIONS CORPORATION  
RE NOTICE OF PROPOSED RULE MAKING  
ET DOCKET 18-295 UNLICENSED USE OF THE 6 GHz BAND AND  
EXPANDING FLEXIBLE USE IN MID-BAND SPECTRUM  
GN DOCKET NUMBER 17-183**

Dear Ms. Dortch:

On July 17, 2019, Michael Mulcay and Frank Bucceri of Encina Communications Corporation met with: Ira Keltz and Jamison Prime, of the Office of Engineering Technology. We discussed the three proposals before the Commission for the operation of unlicensed devices in the U-NII 5 and U-NII 7 licensed 6 GHz bands and their impact on Public Safety and Time-to-Market:

**1. No Coordination of Unlicensed Devices** (an overlay of unlicensed devices):

The random deployment of unlicensed devices -- even inside buildings with the lowest EIRP of 14 dBm -- will cause harmful interference to existing licensed stations<sup>1</sup> and present and Unacceptable risk to Public Safety.

**2. Automatic Frequency Coordination (AFC) After Deployment of Unlicensed Devices:**

This requires a sophisticated AFC -- with detailed structural, organizational and procedural mechanisms that have yet to be determined<sup>2</sup> -- which is expected take years<sup>3</sup>.

**3. Safe Area Coordination (SAC) Before AFC of Deployed Unlicensed Devices:**

This uses the procedures of TSB10 -- which for over three decades has been used to protect existing licensed stations from harmful interference from new licensed devices -- to protect existing licensed stations from new deployments of unlicensed devices.

Throughout this proceeding there have been two imperatives:

1. That Licensed Stations be protected from harmful interference<sup>4</sup>.

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<sup>1</sup> ECC reply comments filing of March 14, 2019, Section II, A.

<sup>2</sup> AT&T, Comsearch and Verizon filing of April 22, 2019.

<sup>3</sup> Wi-Fi Alliance filing of May 2, 2019, Slide 12.

2. That the Commission proceed expeditiously<sup>5</sup> to a Report and Order.

It is clear that a proposal for:

- **No Coordination of Unlicensed Devices** does not meet the imperative to Protect Existing Licensees (and therefore will present an unacceptable risk to public safety, i.e., interrupt 911 calls and other mission-critical communications).
- **AFC After Deployment of Unlicensed Devices** does not meet the imperative to Expeditiously Proceed to a Report and Order.

This is why ECC believes it is in the public interest for the Commission to take a two-pronged approach<sup>6</sup>:

1. Immediately authorize the use of the proven procedures of TSB10-F to prior coordinate Safe Areas<sup>7</sup> in urban, suburban and rural communities nationwide, within which unlicensed devices can be deployed without causing harmful interference to existing licensed stations.

While also pursuing:

2. A multi-step approach to developing a nationwide AFC system.<sup>8</sup>

By this two-pronged approach, the United States gets the immediate benefits of the safe deployment of unlicensed Wi-Fi and 4G/5G small cells in the 6 GHz band, while the technical, structural, organizational and procedural mechanism details of a nationwide AFC system are being explored.

And to demonstrate the safety of **SAC Before AFC of Deployed Unlicensed Devices**, next week ECC will request an experimental license.

Respectfully submitted.

Michael Mulcay, Chairman & CTO  
Encina Communications Corporation  
6701 Democracy Boulevard, Suite 300  
Bethesda, MD 20817

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<sup>4</sup> FCC NPRM ET Docket 18-295 para. 1; Verizon ex parte filing June 8, 2018 GN Docket No. 17-183; Harris, Wiltshire & Grannis, ex parte filing June 2, 2018 para 2; Ericsson ex parte filing January 30, 2018 GN Docket No. 17-183 para 3.

<sup>5</sup> CTIA NPRM 18-295 February 15, 2019; Apple, Broadcom, Cisco Systems, Inc., Facebook, Inc., Google LLC, Hewlett Packard Enterprises, Intel Corp, Marvell Semiconductor, Microsoft Corp., Qualcomm Inc., and Ruckus Networks (RLAN Group), NPRM 18-295 Comments filing February 15, 2019 Introduction and Summary; Ericsson NPRM 18-295 Comments filing February 15, 2019 Introduction and Summary.

<sup>6</sup> ECC ex parte filing of April 29, 2019.

<sup>7</sup> ECC ex parte filing of March 14, 2019, Section III, B.

<sup>8</sup> AT&T, Comsearch and Verizon ex parte filing of April 22, 2019, pages 2-4.

Telephone: 831-659-5618  
Email: mike@encinacomm.com

Courtesy copies to:

Ajit Pai, Chairman, [ajit.pai@fcc.gov](mailto:ajit.pai@fcc.gov)  
Michael O’Rielly, Commissioner, [mike.orielly@fcc.gov](mailto:mike.orielly@fcc.gov)  
Brendan Carr, Commissioner, [brendan.carr@fcc.gov](mailto:brendan.carr@fcc.gov)  
Jessica Rosenworcel, Commissioner, [jessica.rosenworcel@fcc.gov](mailto:jessica.rosenworcel@fcc.gov)  
Geoffrey Starks, Commissioner, [geoffrey.starks@fcc.gov](mailto:geoffrey.starks@fcc.gov)  
Julius P. Knapp, Chief OET, [julius.knapp@fcc.gov](mailto:julius.knapp@fcc.gov)  
Aaron Goldberger, Office of Chairman Pai, [aaron.goldberger@fcc.gov](mailto:aaron.goldberger@fcc.gov)  
Erin McGrath, Office of Commissioner O’Rielly, [erin.mcgrath@fcc.gov](mailto:erin.mcgrath@fcc.gov)  
William Davenport, Office of Commissioner Starks, [william.davenport@fcc.gov](mailto:william.davenport@fcc.gov)  
Umair Javed, Office of Commissioner Rosenworcel, [umair.javed@fcc.gov](mailto:umair.javed@fcc.gov)  
Will Adams, Office of Commissioner Carr, [will.adams@fcc.gov](mailto:will.adams@fcc.gov)



## Three Basic Proposals Before the Commission

### **No Coordination of Unlicensed Devices:**

An overlay of licensed stations with unlicensed devices.

### **AFC After Deployment of Unlicensed Devices:**

Automatic Frequency Coordination (AFC) after deployment of Unlicensed Devices

### **Safe Area Coordination Before AFC of Deployed Unlicensed Devices:**

Safe Area Coordination (SAC) before AFC of deployed Unlicensed Devices.

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## Overview



**No Coordination of Unlicensed Devices** will present an unacceptable risk to public safety.



**AFC After Deployment of Unlicensed Devices** will not be available for months to years.



**SAC Before AFC of Deployed Unlicensed Devices** which could be safely deployed now<sup>1</sup>.

1. Minor change to NPRM 18-295 para 25, EOC's ex parte filing of March 14, 2019.

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## **No Coordination of Unlicensed Devices**

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## **No Coordination of Unlicensed Devices**

The random deployment of uncoordinated unlicensed devices  
will cause harmful/catastrophic interference  
and is therefore an unacceptable risk to public safety.

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## No Coordination of Unlicensed Devices

### Harmful Interference:

When the Interfering Signal degrades a link's Fade Margin by 1 dB or more (decreases the path's availability).

### Catastrophic Interference:

When the Interfering Signal causes Errors on the Victim Path 100% of the time (zero path fading).

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## No Coordination of Unlicensed Devices

### LOS Distance to a Victim Receiver

		Harmful Interference		Catastrophic Interference	
AP EIRP	dBm	36	36	36	36
Modulation	QAM	64	4096	64	4096
Distance to Victim	Miles	0 to > 250	0 to > 250	0 to 22	0 to 125
		Harmful Interference		Catastrophic Interference	
AP EIRP	dBm	12 <sup>1</sup>	12 <sup>1</sup>	12 <sup>1</sup>	12 <sup>1</sup>
Modulation	QAM	64	4096	64	4096
Distance to Victim	Miles	0 to 100	0 to 100	0 to 1	0 to 6

1. 12 dBm = 14 dBm - 2 dB window loss. ECC's measured loss of 6 GHz signals through window glass has varied from 2 dB to 22 dB.

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## No Coordination of Unlicensed Devices

The justification for No Coordination is based upon a Monte Carlo Analysis<sup>1</sup> and on this basis the RLAN Group is asking the Commission to gamble with public safety and critical infrastructure.



This will put 911 calls at risk -- emergency responses for heart attack victims, car crashes, natural disasters (hurricanes, earthquakes, wild fires), terrorist attacks, school shootings, etc. -- and place essential real-time monitoring in peril -- mission critical communications for the national electric grid, gas pipelines and off-shore oil rigs, all of which could endanger the lives of first responders.

<sup>1</sup> Filing of Apple Inc., Broadcom Inc., Cisco Systems, Inc., Facebook, Inc., Google LLC, Hewlett Packard Enterprise, Intel Corporation, Marvell Semiconductor, Inc., and Qualcomm Incorporated (RLAN Group), re NPRM 18-295 posted July 2, 2019.

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## **AFC After Deployment of Unlicensed Devices**

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## AFC After Deployment of Unlicensed Devices

This requires a sophisticated AFC -- with detailed structural, organizational and procedural mechanisms that have yet to be determined<sup>1</sup> -- and which is expected to take years<sup>2</sup> before a long-term solution that provides adequate protection from harmful interference from unlicensed use in the 6 GHz band<sup>3</sup>.

1,3 AT&T, Comsearch and Verizon filing of April 22, 2019.

2 The Wi-Fi Alliance filing of May 2, 2019, Slide 12.

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## **SAC Before AFC of Deployed Unlicensed Devices**

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## SAC Before AFC of Deployed Unlicensed Devices

Uses the procedures of TSB10 -- which for over three decades has been used to protect existing licensed stations from harmful interference from new licensed devices -- to create a defined Safe Area around a Licensed Reference Station (LRS), together with a simplified AFC, to protect existing licensed stations from new deployments of unlicensed devices.

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## Conclusion



**No Coordination of Unlicensed Devices** will present an unacceptable risk to public safety.



**AFC After Deployment of Unlicensed Devices** will not be available for months to years.



**SAC Before AFC of Deployed Unlicensed Devices** which could be safely deployed now.<sup>1</sup>

1. Minor change to NPRM 18-295 para 25, EOC's ex parte filing of March 14, 2019.

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## Experimental License

Next week ECC will request an experimental license to  
demonstrate the safety of  
SAC Before AFC of Deployed Unlicensed Devices.

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